

Command and Control in the Deep Battle

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The Tactical Air Operations Center (TAOC) has the ability to manage the Marine Air Ground Task Force (MAGTF) deep fight and the TAOC provides the Aviation Combat Element (ACE) commander with extensive capabilities and flexibility in controlling the deep battle and prosecuting time sensitive targets (TSTs). This provides the ACE Commander the ability to shape the MAGTF battle space and impose his will directly on the enemy through the effective use of Deep Air Support (DAS). The ACE does this in the close battle already using organic agencies within the Marine Air Command and Control System (MACCS) and with the Forward Air Controller Airborne (FAC(A)) and the Tactical Air Controller Airborne (TAC(A)). The Marine Air Command and Control System (MACCS) consist of various command and control agencies which the ACE Commander uses to monitor, supervise and influence the application of DAS from the Tactical Air Command Center (TACC).

### **Background/Current Doctrine**

Using the MACCS, the MAGTF can integrate, coordinate, and control all air operations within its area of operations and with joint or combined forces. The principal agencies of the MACCS concerned with DAS are the Marine TACC, TAOC, and the

Direct Air Support Center (DASC).<sup>1</sup> Each agency has its own unique function; however, they must rely on each other for mission accomplishment. The DASC requires detailed integration with the Ground Combat Element (GCE) and focuses on the close fight. However, due to the lack of detailed coordination between the ground forces' DAS missions and the DASC, the DASC does not normally control those aircraft.<sup>2</sup> The TAOC is the principal air defense agency that the MACCS uses to conduct airspace control and management. Through radar inputs from its organic sensors and data link information from other military radar units (MRU), the TAOC provides real-time surveillance of assigned airspace. In addition, the TAOC provides air direction, positive aircraft control, and navigational assistance to friendly aircraft.<sup>3</sup> Deep air support missions require timely decisions, and effective command and control. The TAOC possesses the inherent capabilities to process these requests and provide effective command and control of the deep battle and allow the MACCS to accomplish its mission.

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<sup>1</sup> United States Marine Corps, Marine Corps Warfighting Publication 3-23.2: Deep Air Support (Washington, D.C.: Government Printing Office, 2001), 2-2.

<sup>2</sup> United States Marine Corps, Marine Corps Warfighting Publication 3-23.2: Deep Air Support (Washington, D.C.: Government Printing Office, 2001), 2-4.

<sup>3</sup> United States Marine Corps, Marine Corps Warfighting Publication 3-25.7: Tactical Air Operations Center Handbook (Washington, D.C.: Government Printing Office, 1996), 1-1.

### **Airspace Control Measures**

The TAOC provides routing, radar control, and surveillance for DAS aircraft en route to and from target areas. Deep battle management is done through positive and procedural control. Positive control requires positive tracking, direction, and identifying aircraft to exercise airspace control. Positive control is conducted electronically by agencies equipped with radar; identification, friend or foe (IFF) interrogators and receivers; beacons; computers; digital data links; and communications equipment.<sup>4</sup> A commander must locate aircraft and maintain continuous communications to exercise positive control. Positive control allows the TAOC to route outbound aircraft to prosecute their mission or to return to base (RTB) after the mission. During the process of air direction, routing, or de-confliction, the TAOC can provide kill box information, bomb damage assessment, and situation updates in order to increase the situational awareness of the aircrews. Air direction can also provide detailed tasking for a deep battle mission, refuel the aircraft, and divert or re-task to prosecute a different type of mission.

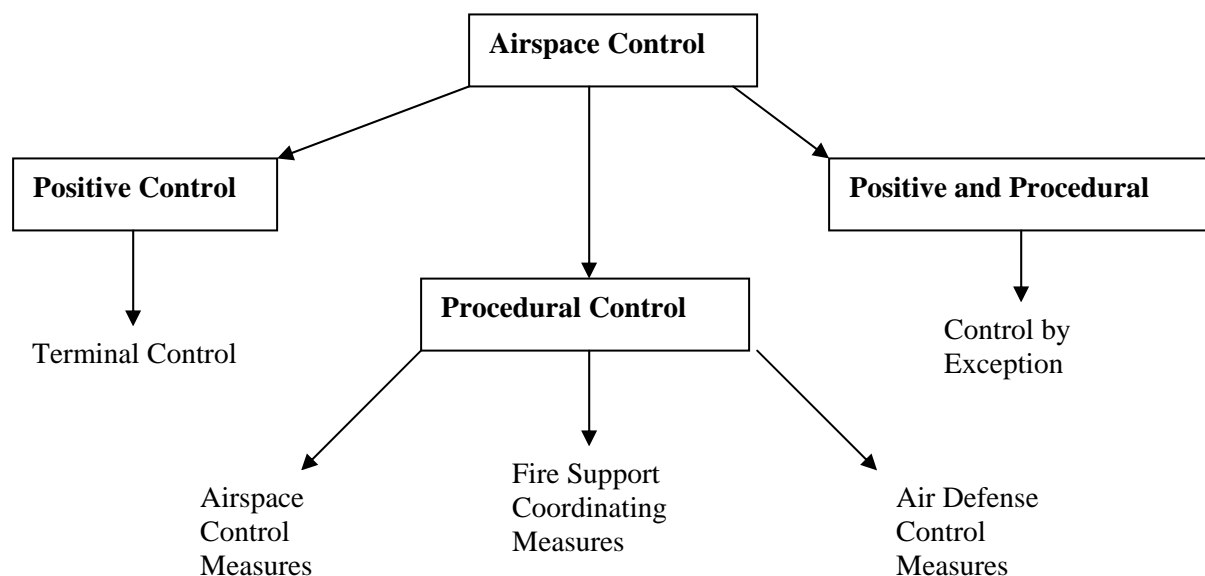
Procedural control relies on previously agreed upon and promulgated orders and procedures. These orders and procedures

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<sup>4</sup> United States Marine Corps, Marine Corps Warfighting Publication 3-22: Anti-Air Warfare (Washington, D.C.: Government Printing Office, 2001), 4-2.

include; airspace control measures, fire support coordinating measures, and air defense control measures.<sup>5</sup> In the event of equipment failure, terrain limitations, or austere environmental conditions, the TAOC uses procedural control to route and de-conflict aircraft and missions.

In the absence of unlimited command and control assets, the optimal method of controlling aircraft and missiles conducting Anti-Air Warfare (AAW) operations is by combining positive and procedural control. The most effective airspace control method is usually procedural control implemented to cover positive control limitations.<sup>6</sup>



**Figure 4-1 Airspace Control Methods<sup>1</sup>**

<sup>5</sup> United States Marine Corps, Marine Corps Warfighting Publication 3-22: Anti-Air Warfare (Washington, D.C.: Government Printing Office, 2001), 4-2.

<sup>6</sup> United States Marine Corps, Marine Corps Warfighting Publication 3-22: Anti-Air Warfare (Washington, D.C.: Government Printing Office, 2001), 4-2.

### **Capabilities**

One of the key capabilities that the TAOC possesses to enhance its deep battle management function is the ability to forward the Recognized Air Picture (RAP) to the TACC. The TAOC can transmit and receive digital information on Tactical Digital Information Link (TDL-A, Link-4A) and TDL-J (Link-16). Using these data links, the TAOC shares digital information with other theater national assets and command and control agencies in order to ensure that the ACE commander in the Tactical Air Command Center receives the recognized air picture. The recognized air picture enhances the situational awareness of the ACE commander. This allows the TAOC to more efficiently manage the deep fight.

### **Examples: Afghanistan and Iraq**

In support of the Global War on Terrorism, the TAOC proved that it can function as the deep battle manager. During Operation Iraqi Freedom (OIF), it was with reasonable assurance that there was a lack of an enemy air force (Saddam's air force was not functional), but friendly commanders had some concerns of possible helicopters or unmanned aerial vehicles (UAVs) that could deliver nuclear, biological, or chemical (NBC) agents. Many times during an air mission, targets of opportunity, both airborne and ground targets, became available that needed to be

visually identified (VID). This can only be accomplished by providing the friendly aircraft with positive control to the target of interest. However, there is not always a "stack" of aircraft airborne available to do missions on call as needed for the MAGTF. Aircraft were diverted and re-tasked to perform these missions based on location in the airspace, fuel available, remaining ordnance, and type of aircraft. The TAOC is able to provide "one-stop shopping" for this function and coordinate with adjacent joint air control agencies to obtain and route aircraft to execute missions in the deep or close fights, or investigate threats in different sectors. Combine this with routing and controlling the tanker assets and the result is success for the MAGTF within the Marine Corps single battle concept.

The same example took place in Afghanistan during Operation Enduring Freedom (OEF). Aircraft and tanker assets were being managed by the TAOC in the southeastern sector of the airspace while the northwestern airspace was under the control of the Airborne Warning and Control Station (AWACS). The TAOC was able to communicate and pass vital information via digital data-links with the AWACS. Therefore allowing aircraft the ability to prosecute time sensitive targets or provide immediate close air support (CAS) requests to the soldiers on the ground.



On a given mission, the TAOC could direct the tasking of aircraft based on the immediate needs of the tactical situation. The TAOC performed the deep battle management function with a Marine operator inside a Tactical Air Operations Module (TAOM) that used Automated Deep Operations Coordinated System (ADOCS) and a hotline to the Deep Battle Cell (DBC) in the TACC. ADOCS is a joint mission management software application. It provides a suite of tools and interfaces for horizontal and vertical integration across battle space functional areas.<sup>7</sup> This operator could also communicate with all MACCS agencies as well as the AWACS and other joint command and control agencies. The key to the operator in the TAOM is the situational awareness availability of real-time information concerning routing, tasking, and de-confliction of aircraft as they prosecuted the close and deep fight. The TAOC was able to provide aircraft at the request of the Direct Air Support Center (DASC) to the close fight when needed. This proved to be beneficial in the timely tasking and de-confliction of aircraft.

By using the TAOC as a prime player for the deep fight, aircraft (Marines, Navy, and Air Force) were used accurately and efficiently. The goal of the operator performing the deep battle manager function in the TAOC is to not send a single aircraft back to base with any remaining ordnance available.

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<sup>7</sup> "Automated Deep Operations Coordination System (ADOCS)", [www.globalsecurity.org](http://www.globalsecurity.org); December 15, 2005.

During OIF this concept was valuable to not only joint and Marine aircraft, but also to the Marines on the ground that counted on close air support as well as destroying targets forward of the Fire Support Coordination Line (FSCL) as they progressed forward. The TAOC possesses the communications, RADARs, and expertise to manage and coordinate the deep battle effectively. The TAOC allows the ACE and MAGTF commanders the flexibility to task aircraft and effectively manage assets as needed to successfully accomplish the mission without wasting valuable air assets and limiting the number of aircraft returning with unexpended ordnance.

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